

HIGH SCHOOL

STUDENT GUIDE

to

ARIZONA'S INSTRUMENT

TO

MEASURE STANDARDS

3rd Revision 8/2003

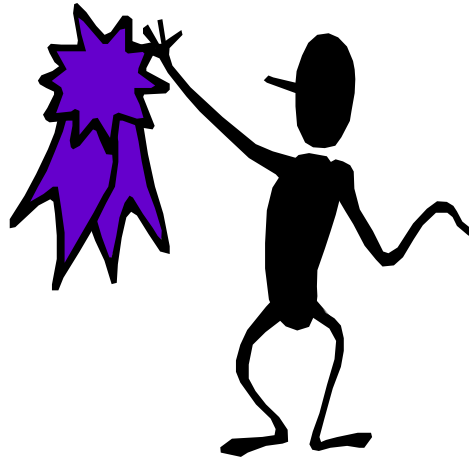
2nd Revision 9/2001

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1st Revision 9/2000

You CAN Do It!



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Questions about AIMS

The purpose of this *Student Guide to AIMS* is to give you helpful information about the high school exit level assessment (Arizona's Instrument to Measure Standards), which you must pass in order to complete the state's high school graduation requirements and earn an Arizona high school diploma (compliance date in 2006). This guide will help you understand how the standards will be tested, familiarize you with the types of questions you will be asked, and explain how your responses will be scored. **Please note that this guide is formatted specifically to save space and does not represent the actual formatting used in any of the AIMS tests.**

WHAT IS AIMS?

Arizona's Instrument to Measure Standards (AIMS) measures your achievement of the Arizona Academic Standards adopted by the state Board of Education in three subject areas: Reading, Writing, and Mathematics.

WHAT SUBJECTS ARE TESTED ON AIMS?

Reading, Writing, and Mathematics will be tested with one test for Reading, and one for Mathematics and one extended Writing Prompt for Writing.

WHO HAS TO TAKE AIMS?

All students will take AIMS in grades 3, 5, 8, and in high school. The high school level test will be only one of the requirements for a diploma. These requirements may be modified or adapted for some special needs students. High school students must pass the AIMS by 2006 as a graduation requirement. Talk to your teacher to find out if this applies to you.



WHEN WILL I TAKE AIMS IN HIGH SCHOOL?

You will take the tests for the first time in the spring of your sophomore year. You must retake those tests you do not pass each time the test is given (once each semester). If you do not pass any one of the three tests, you will have the opportunity to retake **the test(s) you did not pass** in the fall and/or spring of your junior year, and in the fall and/or spring of your senior year.

WHAT WILL BE TESTED ON AIMS?

Test items were written to measure specifically the Standards, Concepts and Performance Objectives described in the document *Arizona Academic Standards*, which were approved by the state Board of Education in 1996. The 1996 Academic Standards will be assessed in spring, 2004. In addition, the Reading and Mathematics Standards were Articulated by Grade Level in 2003. The Reading and Mathematics Articulated Standards will be assessed in 2005.

Each of the Standards is built on a structured framework that spans kindergarten to twelfth grade, representing skills you have been learning since you started school. This framework forms a strong foundation that will permit all students to make a wide variety of life choices. Within these Standards are the Concepts and Performance Objectives that are the specific, developmentally appropriate, and measurable skills expected at each benchmark year, grades 3, 5, 8 and high school. The Proficiency Standards (High School Standards) are the culmination of your years of work.

Although every Standard in Mathematics, Reading, and Writing is assessed each time AIMS is given, different Concepts and Performance Objectives are tested on different forms of the tests. Therefore, you need to be prepared for all Standards, Concepts and Performance Objectives.

HOW CAN I USE THIS GUIDE TO PREPARE FOR AIMS?

This guide is divided into the three subject areas tested on AIMS. It includes the Standards for each area that you are expected to know, a short explanation of each testing format, hints for test taking, sample test questions, and a scoring guide for written responses. It will NOT teach you what you should know and be able to do to score well on the tests, but it will help you become familiar with the tests. Knowing what to expect will help you to be successful.

HOW CAN I PREPARE FOR AIMS?

- Attend school regularly; you miss a great deal of information if you are not there!
- Thoroughly read and become familiar with the "Arizona's Academic Standards" document so that you understand exactly what you are expected to know and be able to do.
- Ask questions and seek help if you do not understand this guide, the Standards document, or your schoolwork.
- Select your classes wisely to be sure you are getting the instruction you need.
- Take charge of your own learning! Monitor your progress. Self-assess what you know, what you can do well, and where you need to improve.
- Participate in class.
- Have a scheduled time and place to study and do homework.

WHERE CAN I FIND OUT MORE ABOUT ARIZONA STATE GUIDELINES FOR AIMS?

The Arizona Department of Education website: <http://www.ade.az.gov>



TYPES OF ITEMS

Two basic types of items will be used on AIMS and are explained below.



MULTIPLE-CHOICE

Multiple-choice items will ask you to select the **BEST** response from four possible answer choices and indicate your choice by bubbling in the corresponding letter on an answer sheet. Although some responses will require a recall of facts, or the computation of a correct answer, many of the items require higher-level thinking. Each multiple-choice item is scored correct (1 point), or incorrect (0 points), and contributes one point to the overall score. You will find these types of questions on the Reading and Mathematics tests.



EXTENDED RESPONSE

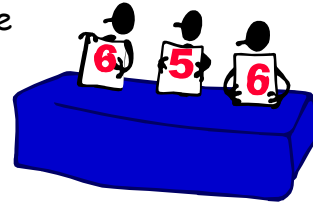
The extended Writing response item will ask you to respond to a prompt, which might include writing a letter, an essay, or a narrative. These responses will require a well-developed and well-organized presentation of ideas that follow a particular format suitable to the purpose and audience. You will be expected to develop your written response by following the steps in the writing



process: prewriting, drafting, revising, editing, and producing a final copy. You will be provided with a revision checklist to guide your work. Your finished copy, not your prewriting or rough draft, will be scored using a six-point rubric that scores each trait or characteristic of effective writing. The rubric for this type of item is provided in Appendix B. You will find this type of question on the Writing test only.

SCORING EXTENDED WRITING RESPONSES

This is where your written communication skills become so important. Although the rubrics used for scoring are flexible enough to allow for your own unique and creative response, your written response still needs to be thoughtful and appropriate for the audience and purpose.



"How long does it have to be?" you may ask. Students will sometimes offer a very limited, or minimal, written response (for example, a few words when complete sentences or fully developed paragraphs are needed). The reader is left to guess what you mean. Partial answers that do not fully answer the question will only earn partial credit. Responses that are off the topic, too brief to score, profane, or illegible, will be considered non-scorable and earn 0 points.



READING

Reading is fundamental to all learning and we are lifelong learners. It can open our minds to people, places, and ideas beyond our own experiences. It gives us the knowledge we need to make informed choices as responsible citizens in a democratic society. One needs only to browse the Internet to realize how much information is available to us at our fingertips. Understanding what we read, using the wealth of information available to us, and thinking critically about what we read, are crucial skills to function successfully in today's world.

ABOUT THE TEST

On AIMS, you will be given several passages to read, both fiction and nonfiction. You may also be given informational text to read; for example, labels and pages from manuals. The questions will assess your ability to understand, interpret, and analyze what you have read. There are approximately 40 multiple-choice items on the Reading test, which should be completed in 1-2 hours. One sample passage is provided in this *Guide*, followed by a set of questions. Reading this passage and answering the questions may help you prepare for the test.

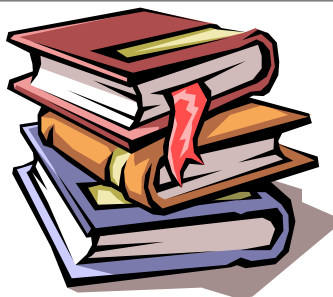
HINTS FOR TAKING AIMS-READING

- You will be asked to read different types of fiction and nonfiction, so adjust your reading to your purpose. Read each passage and the accompanying questions carefully.
- In the multiple-choice questions, choose the **best** response to the question.
- Think about each question before you respond.
- Manage your time so that you won't feel rushed answering questions that require more thought. Again, this is not a timed test, but you do want to use your time well.

READING STANDARD: PROFICIENCY LEVEL

Students learn and effectively apply a variety of reading strategies for comprehending, interpreting, and evaluating a wide range of texts including fiction, nonfiction, classic, and contemporary works.

- R.P1:** Apply reading strategies such as extracting, summarizing, clarifying, and interpreting information; predicting events and extending the ideas presented; relating new information to prior knowledge; supporting assertions with evidence; and making useful connections to other topics to comprehend works of literature and documents.
- R.P2:** Recognize, analyze and evaluate an author's use of literary elements such as mood, tone, theme, point of view, diction, dialogue and figurative language (metaphors, allusions, symbolism, similes) in selections of challenging fiction, nonfiction, and poetry.
- R.P3:** Evaluate the author's persuasive techniques in written selections such as editorials, essays, reviews, and critiques.
- R.P4:** Evaluate technical journals or workplace documents for purpose, organizational pattern, clarity, reliability, accuracy, and relevancy of information.
- R.P5:** Analyze classic and contemporary literature selections, drawn from American and world literature, for the universality of themes such as the individual's role in society, interdependence, and the interaction between man and nature.



SAMPLE READING ARTICLE

Directions: Read the following article and answer Reading Questions 1 through 7.



By Mary Anne Shew

While the information technology industry has never lacked jobs for qualified people, the recent explosion in the popularity of the Internet has created a demand that will last well into the next century. And the opportunities to join this field have never been better.

Let's Start With The Basics

Computer careers can be loosely organized around the three main components of any computer system: the hardware, the software, and the human who uses them. Hardware refers to the physical, tangible pieces of a computer such as the monitor, printer, central processing unit (CPU), and the circuitry that wires it all together. The reason that it's called "hardware" is because once it's been created, it's difficult (and often expensive) to change it physically. Software, on the other hand, is just another kind of human language (programming) and resides with the computer as electrical impulses. If you want the software to do something different from what it was doing, you just update the programming, which resets those impulses and activates the change. Therefore, software is very flexible, or "soft."

Supporting the human who is using the computer hardware and software is one of the most significant challenges of our time. In the early days, very few people had access to a computer, and it required much training and practice to be successful, including a degree in electrical engineering or another related discipline. The equipment and the software that went into those early computers were extremely expensive, and companies limited computer usage to those who were thoroughly trained. In comparison, today's computers are everywhere, and one need not understand programming to use one. But often, user manuals, online tutorials, and classroom training provide an understanding that can be time-consuming to reach on one's own. A huge industry in technical writing, training, and user interface development has sprung up to help people make the most of their computers. So, no matter whether your interest lies in working with things (like hardware), with people, or somewhere in between (like software), there is probably a corner of cyberspace that you can make your own.

Hardware

In the area of hardware, the jobs with the best future are those centered on design and development of new equipment and improvements to older models. Hardware design positions usually require a Bachelor of Science degree in electrical engineering or a similar background. A position that does not require a four-year degree is that of Technician, which includes hardware repair, installation, and upgrades such as replacing a hard disk of one size with a larger one. There are many other jobs associated with manufacturing computers, but most of the assembly lines are in non-U.S. locations.

Software

Software continues to be a major growth industry, and unlike hardware, quite often what you know is more important than how you got that knowledge. Credentials like a college degree or certification from a major software vendor are certainly welcome and add to your employability, but the field is changing so quickly that your own initiative is the only way to keep up with such software innovations as Java, Netscape, and the exciting things happening in multimedia.

Some Other Cyberspace Jobs

Data entry: This is a modern-day version of the *typing pool* in which you type in data, often from a form, into a computer for subsequent processing. The insurance and medical industries are heavily reliant on paperwork that must be entered into computers for billing and payment processing.

Programmer: This person writes the instructions (software) that tell a computer exactly what to do. The most popular programming languages are C, C++, Unix, Java, and HTML (hypertext markup language).

System designer: This person determines how the networks, software, and databases must be set up to meet customer needs. If working with people is more along your line, there are many jobs that lean more heavily on people skills than technical skills. One such job

is **Technical Support**. Many companies now have *help desks*, where people using computers can call to get questions answered and problems resolved. This kind of job requires some basic training, often provided by the company.

Computer sales representatives are those friendly people who answer your questions in computer stores and help you figure which computer is right for you.

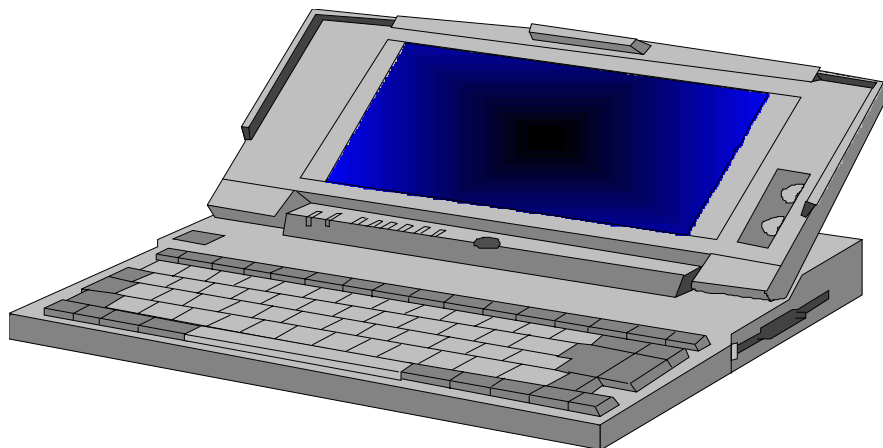
Technical writers meet the challenge of translating *techno-babble* into terms that anyone can understand. Their work can result in everything from user manuals to Web pages to systems documentation.

With more experience, you have more career options. You might be interested in jobs that bridge the technical world of bits and bytes with the business world of finances and products.

Systems managers oversee groups that develop, install, and maintain software. The most senior manager in the information systems part of a company is the chief information officer. He or she is responsible for delivering cost-effective systems that support the business properly.

As with much of the future, it is impossible to predict anything with complete certainty. However, computers are here to stay, in forms not yet even dreamed of (except maybe in *Star Trek*). And there will always be a need for people to make it happen—in cyberspace.

"Careers in Cyberspace" by Mary Anne Shew, published in *blue jean Magazine's* May/ June issue, copyright 1997 by Mary Anne Shew. Used with permission of the author.



SAMPLE QUESTIONS - READING

Text: Careers in Cyberspace

Question #1

(concept R.P4.PO3 - evaluate information)
(Reading Standard Articulated by Grade Level):

R09-S3C2-03

R10-S3C2-03

R11-S3C1-02

R12-S3C1-03

R12-S3C2-01

What is the main purpose of this article?

- A** to discuss various kinds of computers
- B** to explain the jobs of technical writers
- C** to identify jobs in the computer industry
- D** to show the different kinds of hardware and software

Question #2 (concept R.P1.PO4 - make an extension based on evidence presented in the text)

(Reading Standard Articulated by Grade Level):

R09-S3C1-07

R10-S3C1-07

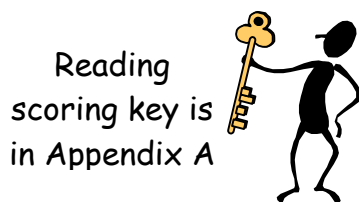
R10-S3C1-08

R11-S3C1-03

R12-S3C1-04

How would you define *cyberspace*?

- A** It is the realm of computer communication.
- B** It is the hardware that goes into making computers.
- C** It is the part of the computer in which the software resides.
- D** It is the software that resides within the computer as electrical impulses.



Question #3 (concept R.P1.PO3 - make predictions based on evidence presented)

(Reading Standard Articulated by Grade Level):

R09-S1C6-01

R10-S1C6-01

R11-S1C6-01

R12-S1C6-01

Given the information in this article, what will probably be the future of computers?

- A** They will become more sophisticated.
- B** They will require fewer computer industry employees.
- C** They will become obsolete.
- D** They will require federal regulation for their future use.

Question #4 (concept R.P4.PO1 - critique consistency and clarity of purpose)

(Reading Standard Articulated by Grade Level)

R10-S3C2-03

R11-S3C2-01

R12-S3C1-01

The information in this article would most likely help readers to

- A** learn about specific job openings in the information technology field.
- B** understand how computer hardware and software work together.
- C** find out if they have the background for a career in computing.
- D** identify different careers offered in the information technology field

Question #5 (concept R.P1.PO2 - summarize the main points)

(Reading Standard Articulated by Grade Level):

R09-S3C1-01

R10-S3C1-01

According to the article, which of these positions requires a college degree?

- A** technician
- B** hardware design
- C** software development
- D** data entry

Question #6 (concept R.P4.PO2 - critique effectiveness of organizational pattern)

(Reading Standard Articulated by Grade Level):

R09-S3C1-03

R09-S3C1-06

R10-S3C1-06

R11-S3C2-01

R12-S3C2-02

What is an advantage to the reader of having the article organized into sections?

- A** It defines unfamiliar terms.
- B** It makes information easier to find.
- C** It covers the topic in more depth.
- D** It provides more details about the main ideas.

Question #7 (concept R.P4.PO3 - evaluate information)

(Reading Standard Articulated by Grade Level):

R09-S3C2-03

R10-S3C2-03

R11-S3C1-02

R12-S3C1-02

R12-S3C1-03

R12-S3C2-01

According to this author, one reason why supporting the computer user has become a major industry is because

- A** computers need to be maintained.
- B** software needs to be updated.
- C** many companies need access to billing and payment records.
- D** more people have access to computers.



WRITING

Writing is a critical skill in effective communication. Whether you are writing an e-mail message, a personal letter, an ad for your business, or a formal report for school or work, being able to express your ideas clearly to your audience is important. But becoming a good writer is not easy. It takes effort and the development of a variety of skills: clear ideas, organization, a voice that holds the interest of your audience, and a consistent control of language, including word choice, sentence structure, and conventions (spelling, grammar, punctuation). With new technology, it is possible to electronically communicate in writing with people all over the world in a matter of minutes. Writing will continue to be a communication skill that is required in most professions and workplaces. Acquiring effective written communication skills will enhance both your personal and professional opportunities.

ABOUT THE TEST

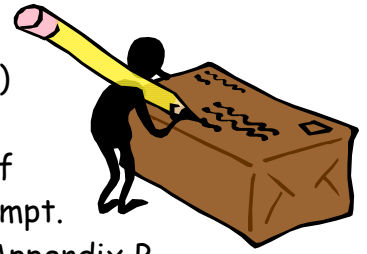
Writing - AIMS- You will be asked to write one extended writing piece on a specific topic. This writing test will be completed in one session, so all steps in the writing process, including revising and editing, and a final copy, will be done in that one session. The writing test includes one extended writing response and should take approximately 2-3 hours to complete. Sample questions are provided on the next few pages. There is also an example of a prompt (writing topic) and scored student responses to this prompt.

HINTS FOR TAKING AIMS-WRITING

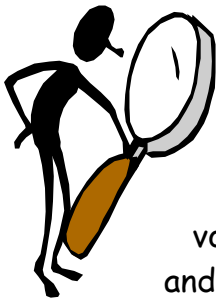
- Listen to directions and read each question carefully. Remember what you have learned about the writing process as you work through the questions. Think about each question. What is the question asking you to do? This is your task (or purpose) for writing. Take time to organize your thoughts before you begin to write. For the extended writing prompt, you may want to create a graphic organizer (outline, web, chart, map, cluster, etc.) to plan and organize your ideas.
- After you complete your draft on the extended writing prompt, you will be provided with a checklist to help you revise your work. Take advantage of this checklist to refine the content of your writing and ensure that it says what you want it to say. Keep in mind the traits (qualities) of effective writing.
- Edit your writing carefully. Your audience (the reader) needs to be able to understand the ideas you are expressing without being hindered by spelling, punctuation, and grammar mistakes that interfere with the message. **Be sure your handwriting is legible.**
- In real-life writing situations, you may have more time to revise and edit your work, perhaps getting input from others before writing a final copy. In a testing situation, this is not possible. Therefore, you will need to make the best use of the time and skills you have to complete this writing task in one sitting.

ABOUT EXTENDED WRITING RESPONSES

On the Writing test, you will be given a task, called a prompt, (for example, write a business letter, a persuasive essay, a narrative) with specific directions regarding audience and purpose. A sample prompt and the concept it assesses are on the next page. Samples of three student responses are provided on the pages following the prompt. The Official Scoring Guide for AIMS Writing (rubric) is located in Appendix B. Here are some suggestions to help you understand the expectations for this writing response and help you prepare to take the Writing section of AIMS:



- Read the prompt on the next page. Be sure you understand the purpose, the task, and the standard being assessed.
- Review the Official Scoring Guide for AIMS Writing (rubric) in Appendix B. Your paper will be scored on a 1-6 point scale, with 1 the lowest and 6 the highest, for each trait (characteristic) of effective writing.



- Read the three sample student responses to the prompt on the following pages. Note strengths and weaknesses in the paper as you read. Does the writer accomplish the task? Is the writer's message clear? Are the ideas supported with convincing evidence and support? Are the ideas organized so that you can logically follow them? Is the voice appropriate? Did the writer carefully choose words that are clear and convincing? Do the sentences have a natural flow? Is the paper carefully edited?
- Examine the score sheets for these three sample papers. Compare the scores and the comments to the rubric. This will give you an idea of what the points on the scale actually look like.
- Discuss with other students and your teacher why one paper is stronger or more convincing than another.
- Practice writing a persuasive response to this sample prompt. Score your own paper using the rubric to determine what your strengths are, and then work on areas you need to improve to be a more effective writer.

Sample Prompt: People are always looking for ways to improve schools, and some of the best ideas come from students. Think of ONE change you could propose to make your school better. Write an essay to CONVINCE other students and teachers in your school to agree with you.

(Concept W.P2 - write a persuasive essay that contains effective introductory and summary statements; arranges the arguments effectively; and fully develops ideas with convincing proof, details, facts, examples, and descriptions. It contains a thesis statement to convey a point of view; develops a point of view with ample support and details appropriate to audience and purpose; contains an organizational structure that includes a beginning, middle and end; uses persuasive word choice and sentence structure):

NOTE: In previous editions of the *High School Student Guide to AIMS*, sample student papers were electronically scanned into the *Guide*. However, the resulting document was difficult to read and slow to download. These scans were also of uneven quality and some portions of the student essays were not legible. For these reasons, the sample student papers were typed in a font to suggest a student's written response in this edition of the *Guide*.

WRITING SAMPLE 1

Having a Separate Middle School

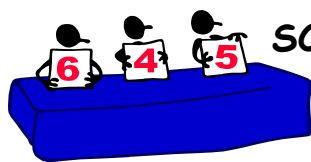
Each day students in grades seven through twelve roam the halls of our high school. They function as a large group, and sometimes that isn't always easy for either upper or underclassmen, because of crowding and class arrangements. What can solve this predicament? Grades five through eight should be combined and made separate from the high school.

Some people may feel that these students in grades five through eight would miss a chance to be around other people to see as models and learn from. This is a definite loss, but they would make up for this by having the advantage of being able to control what rules and policies would affect them and they would have a smaller group to work with. Anyone who has walked the halls of our high school will agree that after the bell there is "bumper to bumper pile up" in the halls getting to each class. Providing a middle school would enable both the older and younger students to have their own class, lunch and break times. Undoubtedly cutting down on the "traffic jam" and making these breaks and class times more enjoyable for students during the school day.

The question now may be where would the money come from to expand, pay new teachers, and get new resources? The money would be less, due to the fact that we already have two teachers and most of the resources needed to teach these particular students. The money is worth spending because it would give students an enjoyable learning environment.

Some people think that having a separate middle school may make middle school students feel less involved with the whole school's activities. This would be a minor problem, because the middle school has already got it's own sports programs. The students could be building their own government, they could learn more about leadership and responsibility to others. This government would also produce middle school representatives who could get many more of the younger students ideas across to the older student's in a more effective way. In turn, the middle school students would have an advantage in leadership skills, while working their way to high school. Having these activities should improve learning abilities and the desire to work in their own units.

We should provide a new, separate learning time for grades five through eight. Having their own middle school would give them the time they need to gain confidence and learning skills needed as they progress through high school and on into the future.



SCORE SHEET FOR WRITING SAMPLE 1

Title: Having a Separate Middle School

(This IS an acceptable response.)

Ideas and Content

6 5 4 3 2 1

Organization

6 5 4 3 2 1

Voice

6 5 4 3 2 1

Word Choice

6 5 4 3 2 1

Sentence Fluency

6 5 4 3 2 1

Conventions

6 5 4 3 2 1

NOTE: The underlined passages are taken from the Official Scoring Guide for AIMS Writing.

Ideas and Content: This paper scored a 4 in ideas and content. The writing is clear and focused: Grades five through eight should be combined and made separate from the high school. Supporting details are relevant but overly general or limited in places: The money required to pay teachers and get new resources would be less due to the fact that we already have two teachers and most of the resources needed to teach these particular students. The money that would be spent is worth spending because it would give students an enjoyable learning environment. The topic is explored; however, developmental details are out of balance. Much emphasis is placed on educational and social benefits; little in-depth attention is placed on practical issues of facilities and fiscal impact.

Organization: This paper scored a 4 in organization. Order and structure are present but seem formulaic. A developed beginning provides background to the issue and clarifies the position of the writer. Reasons supporting particular points of view are presented and followed by reasons supporting counter points of view. Transitions between paragraphs are sometimes weak. The piece ends with a strong statement summarizing the best supporting argument: *Having their own middle school environment would give them the time they need to gain the confidence and learning skills needed as they progress through high school and on into the future.*

Voice: This paper scored a 4 in voice. The writer demonstrates commitment to the topic but is somewhat stiff at times: *In turn the middle school students would have an advantage in leadership skills...Having these activities should improve learning abilities and the desire to work in their own units.*

Word Choice: This paper scored a 5 in word choice. Vocabulary is striking and varied but not overdone: ...after the bell there is a "bumper to bumper" pile-up in the halls... Words are accurate and specific and seem carefully chosen: *The students could be building their own government and in doing this, they could feel even more independent.*

Sentence Fluency: This paper scored a 4 in sentence fluency. There is strong control over simple sentence structures but variable control over more complex sentences: This is a definite loss, but they would make up for this by having the advantage of being able to control what rules and policies would affect them and they would have a smaller group to work with. In turn the middle school students would have an advantage in leadership skills, while working their way to high school. At one point a fragment detracts from the natural flow of the piece: *Undoubtedly cutting down on the "traffic jam" and making these breaks and class times more enjoyable for students during the school day.*

Conventions: This paper scored a high 3 in conventions. The writing demonstrates limited control of standard writing conventions. Strengths include correct spelling and appropriate use of question marks and hyphenated words. There are several errors involving plurals and possessives: *This would be a minor problem, because the middle school has already got it's own sports programs. This government would also produce middle school representatives who could get many more of the younger students' ideas across to the older student's in a more effective way.* Internal punctuation contains some errors: *This is a definite loss, but they would make up for this by having the advantage of being able to control what rules and policies would affect them and they would have a smaller group to work with.* Occasional errors in grammar and usage do not block meaning but distract the reader.

WRITING SAMPLE 2

Foreign Languages by Satellite

At the present time our school is offering Spanish I and II and German I and II by satellite. For students who are involved in the program, this means watching a taped broadcast monitored by a coordinator during their language class. A hotline with a 1-800 number is available for students to ask questions, practice speaking, and get help on assignments. However, class time cannot be used to call, and the coordinator is not required to know either language herself. The arrangement is not practical or effective. Foreign languages should be taught by a certified teacher who knows the language, not by satellite.

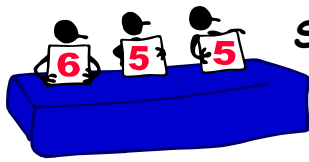
The foremost argument in favor of the satellite program is that it is significantly cheaper than hiring a certified teacher to teach foreign languages. With a limited budget, this may seem like a good answer, but in reality the amount of learning is decreased so much that it would be worth it to spend the extra money to hire a teacher instead. The quality of education is lowered by offering satellite courses instead of foreign languages taught by a classroom teacher.

According to supporters of foreign language instruction by satellite, students learn to be self-directed learners and are forced to become organized and responsible for their own learning in order to do well in the class. This is true, but people learn in different ways, and the satellite program is not best for most people. What happens for many students is that they become frustrated and fall behind, after which it is very hard to get caught up.

Too much is lost by taking a foreign language course by satellite. No speaking of the language takes place in class, so students don't learn how to pronounce words or speak fluently. Advances in reading and writing of the language occur, but not verbally. Words are spoken on the broadcasts, but not often enough for students to really catch on, and if students aren't practicing speaking, they soon forget. Calling in on their own time is also difficult for some students to do. Besides, it is hard to understand pronunciation over the phone, especially when most of the people who answer the hotline speak quickly with thick accents. Pronunciation tests are part of the grading, which most students do poorly on because of lack of practice and knowledge. Then, there is the problem of the coordinator not knowing how to pronounce words or mispronouncing them, which can lead to confusion.

The university that makes the broadcasts began broadcasting in the fall before school started at our school. As a result of this, our school is behind on the broadcasts. Missed school days, because of weather, power outages, and other variables have caused the school to fall further behind. An example of what this can mean for students is that they may be watching a tape talking about the Day of the Dead (the Spanish equivalent of Halloween) in December, or a tape during which they get to make Christmas decorations in January. Another problem with the timing is that a pace is set without the needs of specific classes in mind. Sometimes students need more work in an area before proceeding, but don't get it and become frustrated as they are forced to move on. Other times students need less time on the broadcasts taken up with certain subjects and become bored.

Considering the points on both sides, it is clear that having a certified classroom teacher for foreign language classes is much more productive, effective, and worth the money than offering the courses by satellite. Therefore, our school should hire a qualified classroom teacher to teach foreign language classes in the future.



SCORE SHEET FOR WRITING SAMPLE 2

Title: Foreign Languages by Satellite

(This IS an acceptable response.)

Ideas and Content
6 <u>5</u> 4 3 2 1

Organization
6 <u>5</u> 4 3 2 1

Voice
6 <u>5</u> 4 3 2 1

Word Choice
<u>6</u> 5 4 3 2 1

Sentence Fluency
6 <u>5</u> 4 3 2 1

Conventions
6 <u>5</u> 4 3 2 1

NOTE: The underlined passages are taken from the Official Scoring Guide for AIMS Writing.

Ideas and Content: This paper scored a 5 in ideas and content. The paper demonstrates clarity, focus and control throughout. The introduction provides background information and clarifies the purpose. Main ideas are supported with relevant, carefully selected details. The writer acknowledges the foremost reasons for offering satellite courses and presents counter positions by sharing insights and providing specific examples that support the proposal. The writing presents a balanced exploration of the topic.

Organization: This paper scored a low 5 in organization. Order is strong and helps the reader through the text. The structure is formulaic but nevertheless highly effective given the purpose of the paper. Effective transitions connect ideas and details within paragraphs; however, transitions are somewhat weak between paragraphs.

Voice: This paper scored a 5 in voice. The writer has chosen a voice appropriate for the topic, purpose and audience. The writer has a strong sense of the audience and effectively communicates ideas about a serious topic in a way that is engaging and sincere.

Word Choice: This paper scored a low 6 in word choice. Part of the paper's strength is derived from the writer's ability to use clear and precise language. Accurate, strong, specific words energize the writing: For students who are involved in the program this means watching a taped broadcast monitored by a coordinator during their language class. A hotline with a 1-800 number is available for students to ask questions, practice speaking and get help on assignments. The writer establishes a great deal of credibility with the reader.

Sentence Fluency: This paper scored a low 5 in sentence fluency. The writing has an easy flow and rhythm. There is variation in sentence structure, length and beginnings that add interest to the text. In all but a few places, the writing has a natural sound and the reader can move easily throughout the piece. Occasionally, there are lapses in stylistic control: Advances in reading and writing the language occur, but not verbally. Some fairly complex sentence structures are used with variable control: Other times students need less time on the broadcasts taken up with certain subjects and become bored.

Conventions: This paper scored a 5 in conventions. The writing demonstrates strong control of standard writing conventions and uses them effectively to enhance communication. The paper shows skill in using a wide range of conventions in a sufficiently long piece.

WRITING SAMPLE 3

Drug and Alcohol Class

In my school, I would like to see a alcohol and drug class be taken. Because some kids really need help. Some kids come to school high and drunk during school hours.

Drugs class would be good for some people. It might show what drugs could do to you and your body. What drugs could do to your body and your brain.

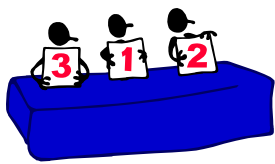
Some drugs can make you really sick. I think they should be I think they should be a drug class and alcohol class too.

We really need these class. It should require to take before you should leave school. It would help some kids realize what they do to you.

My High school should have these class.

Alcohol class should be taken too. Because alcohol is the most dangerous drugs there is in this world to day. Alcohol is not required under the age 21 years old. Some people started at the age of fifteen years old and they get into trouble everytime they drink on weekends.

I really think it should be taken in my High school.



SCORE SHEET FOR WRITING SAMPLE 3

Title: Drug and Alcohol Class

(This is NOT an acceptable response.)

Ideas and Content

6 5 4 3 (2) 1

Organization

6 5 4 3 (2) 1

Voice

6 5 4 (3) 2 1

Word Choice

6 5 4 3 (2) 1

Sentence Fluency

6 5 4 3 (2) 1

Conventions

6 5 4 (3) 2 1

NOTE: The underlined passages are taken from the Official Scoring Guide for AIMS Writing.

Ideas and Content: This paper scored a 2 in Ideas. The writing is characterized by minimal development and insufficient details: *it might be good for some people...it would help some kids realize what they do to you*. There is extensive repetition of detail; the writer repeats the ideas that *we should have this class* several times without developing in any detail why.

Organization: This paper scored a 2 in organization. The writing lacks a clear organizational structure...some attempts at sequencing, but the order of relationships seems unclear. Paragraphs seem randomly placed and there is a lack of clear transitions between paragraphs. Undeveloped beginning, body and end.

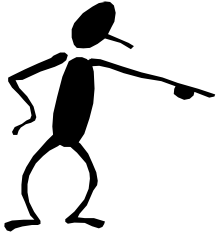
Voice: This paper scored a low 3 in voice. There is an occasional sense of the writer behind the words, but this disappears a line later: *Some drugs can make you really sick...alcohol is the most dangerous drug there is in this world today. I think there should be a drug class and alcohol class too*. A limited sense of audience; the writer's awareness of the reader is unclear.

Word Choice: This paper scored a 2 in word choice. Language is monotonous and misused. Words are colorless, flat, or imprecise; monotonous repetition: *Would...could...should...it...are* overused, detracting from impact. Misuse of simple words such as: *they* for *there*. *Alcohol is not required under the age of 21 years old*.

Sentence Fluency: This paper scored a 2 in sentence fluency. Awkward constructions cause the reader to slow down or reread: *It should require to take before you should leave school. Because some kids really need help*. Sentence patterns are monotonous. *Drug class would be good...they should be a drug class, our high school should have this class...I really think it should be taken*.

Conventions: This paper scored a low 3 in conventions. The writing demonstrates limited control of standard writing conventions; errors begin to impede readability. End of sentence punctuation is usually correct, but internal punctuation contains frequent errors. Errors in grammar and usage do not block meaning but do distract the reader: *Alcohol class should be taken too. Because alcohol is the most dangerous drugs in this world to day*.

OTHER INFORMATION REGARDING EXTENDED WRITING



Keep in mind.....

- You will be given two pages in the test booklet to write your final copy. It is important that you take advantage of the two pages you are given to develop your ideas fully. This is your opportunity to demonstrate how well you can write.
- When examining the sample scores on the preceding pages, notice that a higher score in one trait may compensate for a lower score in another; however, you should attempt to score at least a "4" in each trait. In the rubric, a "3" describes a paper that is "weak" rather than "strong."
- Your final copy needs to be handwritten (not done on a computer). Printing your work is acceptable; however, be sure to distinguish between upper- and lower-case letters. Do NOT print in all capital letters; it is not appropriate at the high school level.
- You may use a dictionary or thesaurus as a reference during the Extended Writing response portion of the test.
- Be conscious of the traits, or characteristics, of effective writing (idea development, organization, voice, word choice, sentence fluency, and conventions) no matter what kind of writing you are asked to do. The same scoring guide, or rubric, will be used for all the types of writing you may be asked to compose: narrative, persuasive, expository, or formal communication.



To examine additional papers that will give you an even better idea of what papers look like with a range of higher and lower trait scores, visit the Oregon Department of Education website <http://open.k12.or.us/standards/cimcri/cimcriw.html>.

We extend our thanks to them for allowing us to reproduce these sample papers.



MATHEMATICS

Mathematics is used as a means to communicate about quantities, logical relationships, and unknowns. Such a simplistic statement may make students who are not planning to go to college ask why mathematics is necessary for them. While the ability to do computation is important, it is the skills of problem finding and problem solving, formalizing, abstract thinking, symbolic representation and interpretation, formulation of logical arguments, and objective reasoning that allow us to function effectively and understand our world. Mathematics is the one area of coursework in the high school curriculum where students are taught these skills, and where answers cannot be obtained just by common sense and guessing. Even without an ever-increasing reliance on technology, mathematical skills meet needs for practical everyday life, intelligent citizenship, and future employment. A study by Arizona State University indicated that students who opt out of advanced levels of mathematics and science may now eliminate up to 75% of career opportunities from which to choose[†]. Algebra has been called the academic passport for passage into virtually every avenue of the job market and every street of schooling. Employers want their employees to be able to set up problems, estimate solutions, identify how accurate solutions need to be, work with other people to reach goals, know the many different types of mathematics that exist, and determine which one is needed in a particular situation. It is clear that the mathematical literacy of the twentieth century will not be sufficient for the twenty-first century.

[†]ASU Research, Fall, 1998, p.41

ABOUT THE TEST

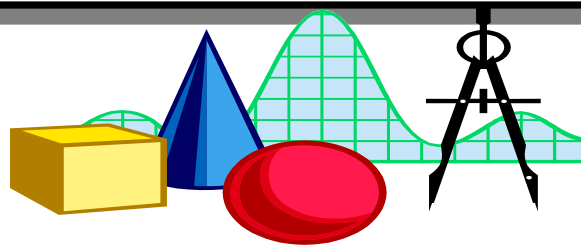
The mathematics test contains approximately 60+ multiple-choice questions. Calculators are not allowed; however, the calculations required can be readily handled with pencil and paper. The questions will emphasize conceptual understanding and problem-solving skills rather than computation skills.

HINTS FOR TAKING AIMS-MATHEMATICS

- Remember! This is NOT a speed test! Take your time and do your best work.
- Since calculators are not allowed on this test, **DOUBLE-CHECK YOUR WORK.**
- Remember to **ESTIMATE BEFOREHAND** to check if your answer is reasonable.
- On the multiple-choice questions, **LOOK** at ALL the choices and **PICK** the **BEST** one.

MATHEMATICS STANDARDS: PROFICIENCY LEVEL

- M.P1: Number Sense.** Students develop number sense and use numbers and number relationships to acquire basic facts, to solve a wide variety of real-world problems, and to determine the reasonableness of results.
- M.P2: Data Analysis and Probability.** Students use data collection and analysis, statistics, and probability to make valid inferences, decisions and arguments, and to solve a variety of real-world problems.
- M.P3: Patterns, Algebra and Functions.** Students use algebraic methods to explore, model and describe patterns, relationships and functions involving numbers, shapes, data, and graphs within a variety of real-world problem-solving situations.
- M.P4: Geometry.** Students use geometric methods, properties and relationships as a means to recognize, draw, describe, connect, and analyze shapes and representations in the physical world.
- M.P5: Measurement and Discrete Mathematics.** Students make and use direct and indirect measurement, metric and U.S. customary, to describe and compare the real world and to prepare for the study of discrete functions, fractals, and chaos that have evolved out of the age of technology.
- M.P6: Mathematical Structure/Logic.** Students use both inductive and deductive reasoning as they make conjectures and test the validity of arguments.



SAMPLE QUESTIONS - MATHEMATICS

What To Expect From This Section

This Student Guide for Mathematics provides examples of the format and types of questions that will appear on AIMS Mathematics. Each question is referenced to the standard and concept it is assessing. An attempt has been made to provide a sampling of the types of questions that might be asked; however, not every concept in each standard has a corresponding sample question in this Guide. An answer key for all Mathematics sample questions is provided in Appendix A. In addition, you will find an AIMS Reference Sheet in Appendix C. The reference sheet in the actual AIMS Mathematics test will be revised, as suggested by the Item Writing Committee in summer, 2001, to reflect only the formulas and other information that will be included on the test. The Reference Sheet provided in Appendix C is the format we are suggesting to the publisher.

STANDARD 1: Number Sense

General concepts you should know:

- Real number system and its various subsystems (natural, whole, integers, rationals, and irrationals)
- Operations with positive and negative numbers
- Scientific notation

Question #1 (concept 1M.P1.PO1 - classify numbers as members of the sets - natural, whole, integers, rationals, and irrationals)
(Mathematics Standard Articulated by Grade Level MHS-S1C1-01)

Which of these could NOT be classified as a number representing the number of people in a room?

- A Rational number
- B Integers
- C Whole numbers
- D Irrational numbers

Question #2 (concept 1M.P2.PO8 - convert standard notation to scientific notation)
(Mathematics Standard Articulated by Grade Level MHS-S1C2-06)

Mercury, which is the planet nearest to the sun, is about 36,000,000 miles from the Sun. How is this distance expressed in scientific notation?

- A 3.6×10^6
- B 3.6×10^7
- C 36×10^8
- D 36×10^9

Question #3 (concept 1M.P2.PO1 - determine a rational estimate of an irrational number)
(Mathematics Standard Articulated by Grade Level MHS-S1C3-03)

Which of the following is the best estimate of $\sqrt{12}$?

- A 2.5
- B 3
- C 3.5
- D 4

Question #4 (concept 1M.P2.PO8 - convert standard notation to scientific notation)
(Mathematics Standard Articulated by Grade Level MHS-S1C2-06)

A water quality researcher measured approximately 0.0004233 grams of bacteria in a water sample. How is this measure expressed in scientific notation?

- A 4.233×10^{-4}
- B 4.233×10^4
- C 42.33×10^{-3}
- D 42.33×10^3

Question #5 (concept 1M.P2.PO3 - solve real-world problems using absolute value)
(Mathematics Standard Articulated by Grade Level MHS-S1C2-03)

A submarine is 285 feet under the surface of the ocean. A helicopter is flying at 4,500 feet above sea level. Given that the helicopter is directly above the submarine, how far apart are they?

- A 285 feet
- B 4,215 feet
- C 4,500 feet
- D 4,785 feet

Question #6 (concept 1M.P2.PO4 - determine which solution is reasonable)
(Mathematics Standard Articulated by Grade Level MHS-S1C3-02)

Sean drove for 6 hours from his home to his aunt's house near Seligman. He averaged between 55 miles per hour and 75 miles per hour. Which of the following is a reasonable total distance that he drove on this trip?

- A 300
- B 390
- C 450
- D 500

STANDARD 2: Data Analysis and Probability

General concepts you should know:

- Graphs (histograms, line graphs, circle graphs, box-and-whisker plots, frequency charts, stem-and-leaf plots, and scatter plots)
- Measures of central tendency, variability and correlation (mean, median, mode, quartiles, and range)
- Sample vs. census
- Biased vs. unbiased samples
- Pattern prediction
- Misuses of statistics
- Probability
- Probable outcomes of events
- Positive and negative correlation

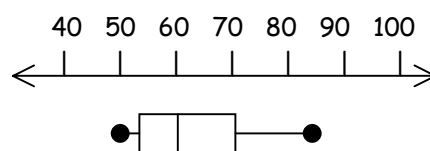
Question #7 (concept 2M.P4.PO1 - differentiate between sampling and census)
(Mathematics Standard Articulated by Grade Level MHS-S1C1-16)

Which of the following is an example of the use of a census?

- A** All the students at XYZ High School are asked whether they ride the bus to school.
- B** All the juniors in a government class are asked to determine the school mascot for the entire school.
- C** All the seniors are asked if they like calculus class.
- D** All the girls in an algebra class are asked to participate in a survey to choose the music for the all-school dance.

Question #8 (concept 2M.P1.PO2 - construct...box-and-whisker plots)
(Mathematics Standard Articulated by Grade Level MHS-S1C1-04)

The speed for a sample of twenty-five cars is shown in miles per hour (mph) in the box-and-whiskers graph below.

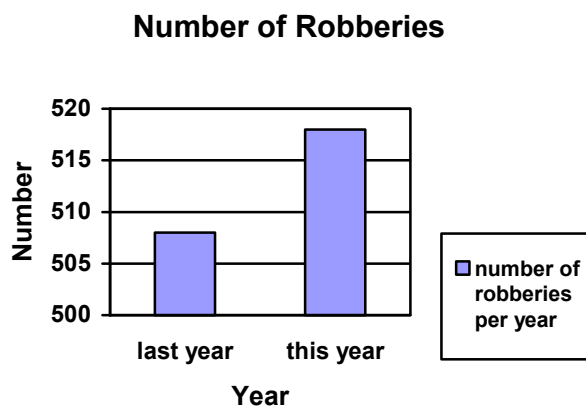


If an officer is writing speeding tickets to each driver in the sample whose speed is more than 70 mph, about what percentage of the drivers will be ticketed?

- A** 25%
- B** 40%
- C** 75%
- D** cannot be determined

Question #9 (concept 2M.P1.PO6 - identify graphic misrepresentations and distortions of sets of data)
(Mathematics Standard Articulated by Grade Level MHS-S2C1-05)

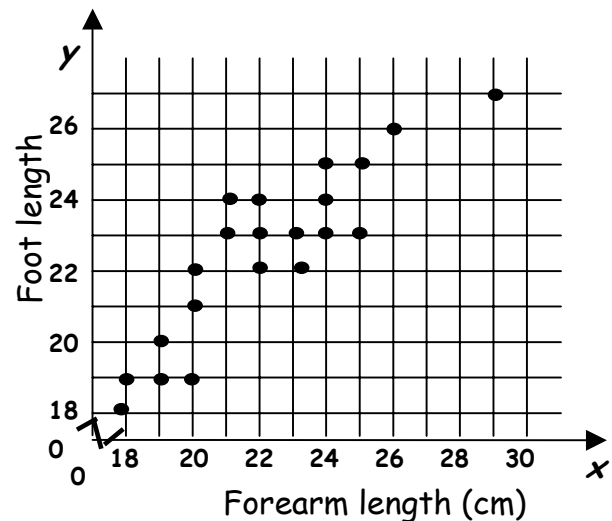
A TV reporter showed the following graph and stated, "There has been a huge increase in the number of robberies since last year." Which of the following represents a correct conclusion?



- A** He is correct. The second bar in the graph is twice as high as the first bar, which is a 100% increase.
- B** He is not correct. The graph shows a huge decrease in the number of robberies since last year.
- C** He is correct. The second bar in the graph is twice as high as the first bar, which is a 50% increase.
- D** He is not correct. There was an increase of about 10 robberies, which is about a 2% increase.

Question #10 (concept 2M.P3.PO1 - draw a line which closely fits a scatter plot)
(Mathematics Standard Articulated by Grade Level MHS-S2C1-13)

Examine the graph below, which shows the forearm lengths and foot lengths of 18 students in an algebra class.

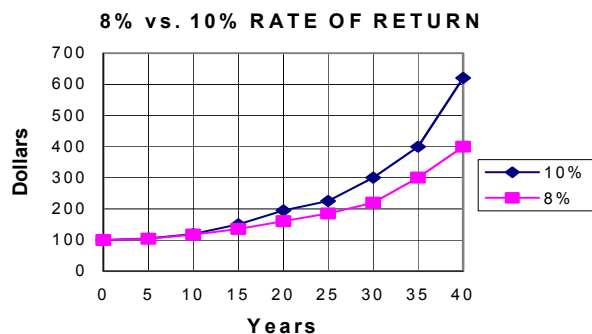


In order to approximate the best fitting line, which of the following two points should be used to create the equation representing this line?

- A** (18, 18) and (29, 27)
- B** (23, 22) and (23, 23)
- C** (21, 23) and (25, 23)
- D** (19, 20) and (24, 24)

Question #11 (concept 2M.P1.PO4 - evaluate the reasonableness of conclusions drawn from data analysis)
(Mathematics Standard Articulated by Grade Level MHS-S2C1-11)

The graph below shows the results of investing \$100 per month in accounts with two different rates of return. Based on this information, which statement below is true?



- A** Investing \$100 per month in an account that pays 10% rather than 8% will not make any difference until after 25 years.
- B** A larger rate of return causes the account to grow rapidly at first, but then the growth rate slows.
- C** A small increase in the rate of return makes a significant difference in the growth of the account over 40 years.
- D** If the graph were to continue to 100 years, the 8% line would catch up to the 10% line.

Question #12 (concept 2M.P11.PO1 - apply the concepts of mean, median, mode, and range to draw conclusions about data)
(Mathematics Standard Articulated by Grade Level MHS-S2C1-10)

Nutritionists often recommend a diet that is low in fat. The table below lists the approximate fat content of some breads and crackers.

Breads & Crackers	Fat Content Per Serving* (g)
Cracked wheat bread	0.9
Whole wheat bread	1.1
Pita bread	0.6
Matzo	0.3
Graham cracker	0.5
Corn muffin	4.0
Rice cake	0.3
Tortilla	1.1
Bran muffin	5.1
Pumpernickel	1.1
*Fat content per serving may vary by manufacturer	

Adapted from "Integrated Mathematics," 1995, Houghton Mifflin Company.

What is the median of this data set?

- A** 0.9
- B** 1.0
- C** 1.1
- D** 1.5

STANDARD 3: Algebra

General concepts you should know:

- Graphing, evaluating, simplifying, and solving linear equations and inequalities
- Real and rational roots
- Systems of linear equations
- Domain and range of equations
- Graphical representations of functions ("vertical line" test)

Question #13 (concept 3M.P4.PO4 - interpret algebraic equations and inequalities geometrically and describe geometric relationships algebraically)
(Mathematics Standard Articulated by Grade Level MHS-S3C3-10)

Which of these is the correct equation for the line that crosses the x -axis at (3,0) and the y -axis at (0,6)?

- A $y = 2x + 3$
- B $y = 2x + 6$
- C $y = -2x + 3$
- D $y = -2x + 6$

Question #14 (concept 3M.P6.PO9 - solve linear equations and inequalities in one variable)
(Mathematics Standard Articulated by Grade Level MHS-S3C3-09)

What are **ALL** the values of x for which the inequality $5x + \frac{5}{3} \leq -2x - \frac{2}{3}$ is true?

- A $x \leq -\frac{7}{9}$
- B $x \leq -\frac{1}{3}$
- C $x \geq 0$
- D $x \geq \frac{7}{3}$

Question #15 (concept 3M.P6.PO3 - simplify algebraic expressions)
(Mathematics Standard Articulated by Grade Level MHS-S3C3-02)

Simplify: $2x(x^2 + 3xy + 6y^2)$

- A $2x^3 + 3xy + 6y^2$
- B $2x^3 + 6x^2y + 12xy^2$
- C $2x^2 + 6xy + 12y^2$
- D $2x^2 + 6x^2y + 12xy^2$

Question #16 (concept 3M.P8.PO1 - translate verbal expressions and sentences to mathematical expressions and sentences)
(Mathematics Standard Articulated by Grade Level MHS-S3C3-04)

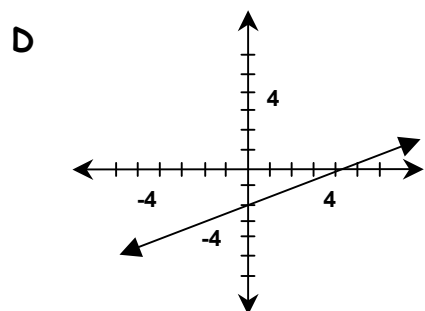
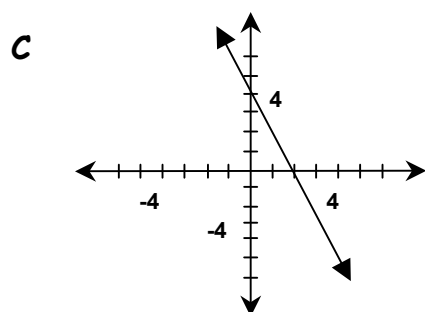
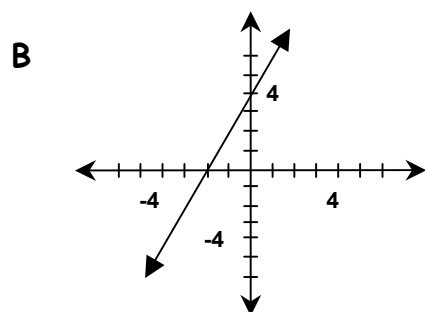
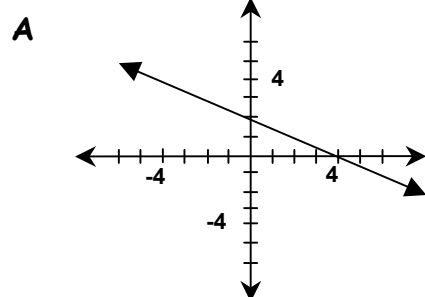
Bob is making a long-distance phone call from Cordes Junction to his friend in Cedar Springs. The telephone company says the call will cost \$1.25 for the first minute and \$0.75 for each additional minute. If Bob and his friend talk for m minutes, how much will the call cost?

- A $0.75 + 1.25m$
- B $1.25 + 0.75(m - 1)$
- C $0.75 + 1.25(m - 1)$
- D $1.25 + 0.75m$

Question #17 (concept 3M.P7.PO2 - create a graph from a table of values)
(Mathematics Standard Articulated by Grade Level MHS-S3C3-06)

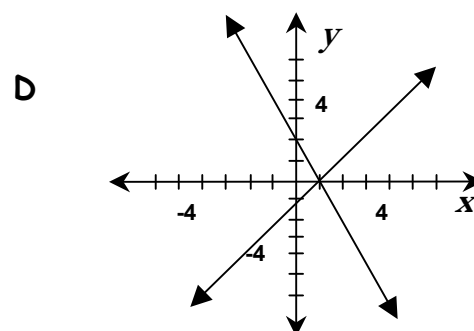
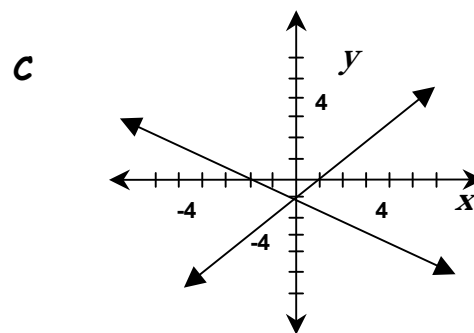
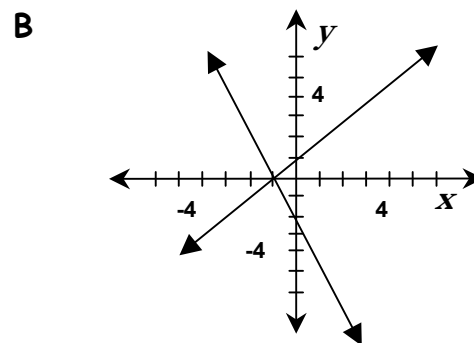
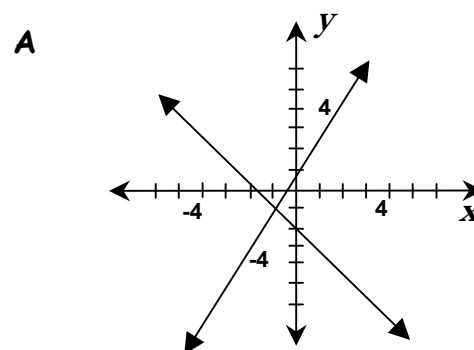
Which of the following lines passes through the points in the table?

x	y
0	4
2	0
3	-2



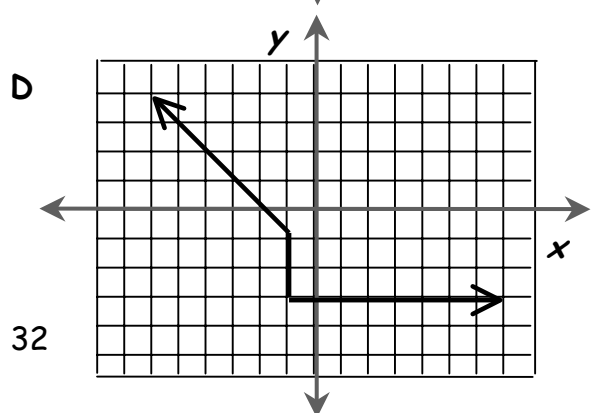
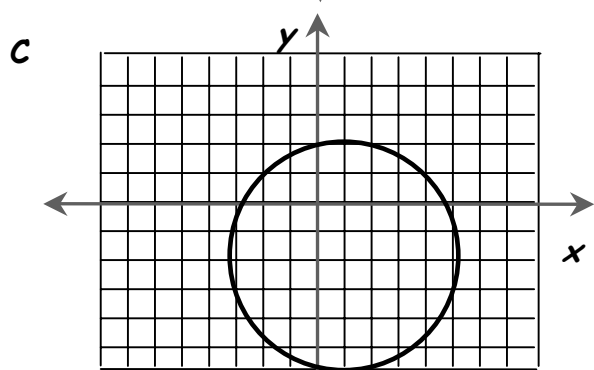
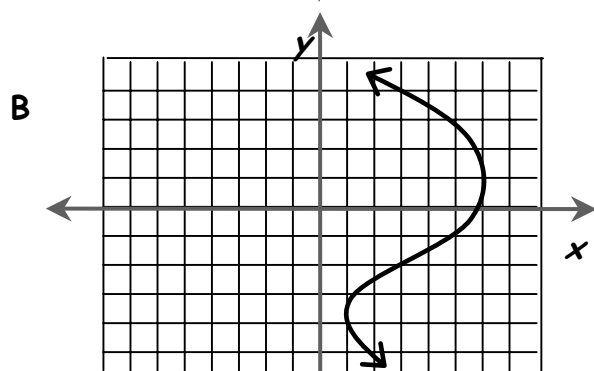
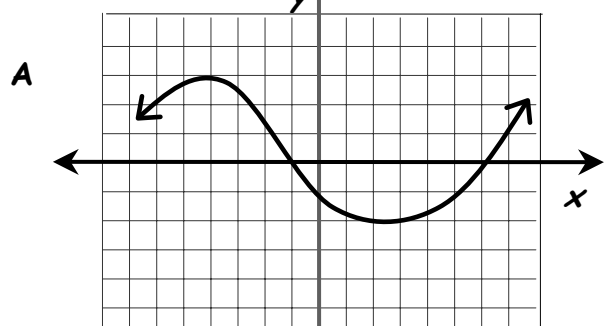
Question #18 (concept 3M.P4.PO1 - graph a linear equation in two variables)
(Mathematics Standard Articulated by Grade Level MHS-S4C3-02)

Which pair of lines shown below could be the graphs of $2x + y = -2$ and $-x + y = 1$?



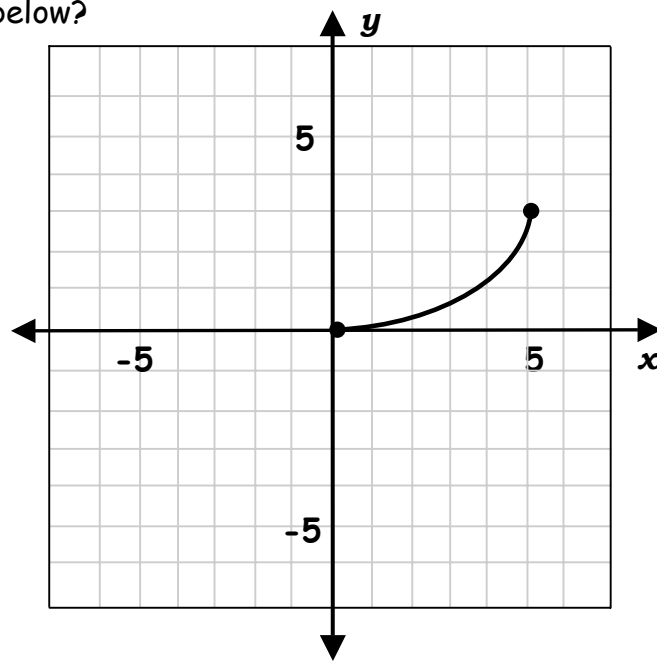
Question #19 (concept 3M.P2.PO3 - determine whether a relation is a function given the graphical representation)
(Mathematics Standard Articulated by Grade Level MHS-S3C2-01)

Which of the following graphs represents a function of x ?



Question #20 (concept 3M.P9.PO2 - determine the domain and range of a relation, given the graph or a set of points)
(Mathematics Standard Articulated by Grade Level MHS-S3C2-05)

What is the domain of the relation below?



- A** $y \geq 0$
- B** $0 \leq x \leq 5$
- C** $x \leq 0$
- D** $0 \leq y \leq 3$

Question #21 (concept 3M.P6.02 - evaluate algebraic expressions using substitution)
(Mathematics Standard Articulated by Grade Level MHS-S3C3-01)

In the equation below, what is the value of y when $x = -2$?

$$-12x^2 + 17x + 5 = y$$

- A** 19
- B** -5
- C** -9
- D** -77

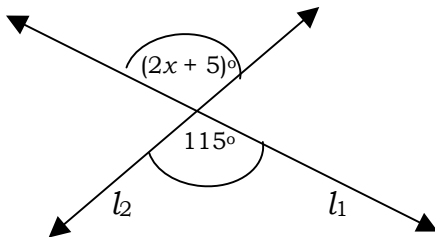
STANDARD 4: Geometry

General concepts you should know:

- Pythagorean Theorem
- Triangle characteristics (congruence and similarity relationships)
- Angle characteristics (complementary, supplementary, and congruent)
- Circle characteristics (arcs, chords, tangents, and secants)
- Identification of prisms, pyramids, cones, cylinders, and spheres
- Coordinate plane characteristics (coordinates, distance, midpoint)
- Transformations (reflections, rotations, dilations, and translations; symmetry)

Question #22 (concept 4M.P2.PO8 - solve problems involving complementary, supplementary and congruent angles)
(Mathematics Standard Articulated by Grade Level MHS-S4C1-06)

Line l_1 intersects line l_2 in the following figure. What is the value of x ?



- A 55
- B 65
- C 115
- D 220

Question #23 (concept 4M.P5.PO1 - determine the relative placement of two lines on a coordinate plane by examining the algebraic equations)
(Mathematics Standard Articulated by Grade Level MHS-S4C2-09)

Which statement is true about the graphs of these equations?

$$\begin{aligned} 3y &= -12x + 6 \\ -2y &= 8x - 4 \end{aligned}$$

- A The lines coincide
- B The lines are parallel
- C The lines are perpendicular
- D The lines intersect, but are not perpendicular

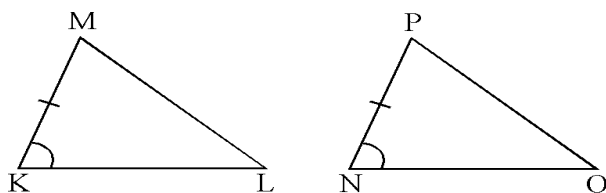
Question #24 (concept 4M.P2.PO3 - solve problem situations using Pythagorean Theorem)
(Mathematics Standard Articulated by Grade Level MHS-S4C1-10)

A 10-foot ladder is leaning against a building. How high on the building will the ladder reach when the bottom of the ladder is 6 feet from the building?

- A 60 feet
- B 16 feet
- C 10 feet
- D 8 feet

Question #25 (concept 4M.P4.PO3 - state valid conclusions using given geometric definitions, postulates and theorems)
(Mathematics Standard Articulated by Grade Level MHS-S5C2-01)

Refer to the pair of triangles shown.

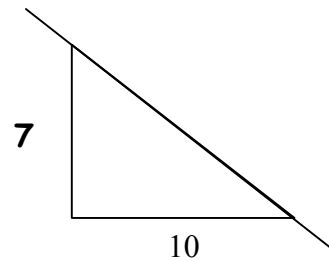


Which of the following must be true so that $\triangle KLM \cong \triangle NOP$ by ASA?

- A $\overline{LM} @ \overline{OP}$
- B $\overline{KL} @ \overline{NO}$
- C $\angle M @ \angle P$
- D $\angle L @ \angle O$

Question #26 (concept 4M.P4.PO1 - find similarities and differences among geometric shapes)
(Mathematics Standard Articulated by Grade Level MHS-S4C4-04)

An architect is requiring the pitch of a roof to be at least 7 on 10 on a new house he is building, as shown in the figure below.



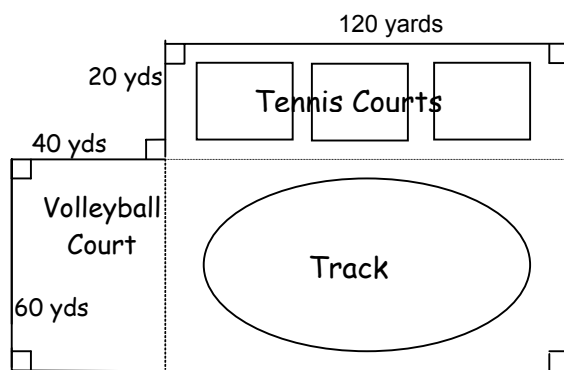
Which of the following roofs is not steep enough?

- A A roof with a pitch of 5 on 7.
- B A roof with a pitch of 14 on 15.
- C A roof with a pitch of 3 on 5.
- D A roof with a pitch of 7 on 9.

Question #27 (concept 4M.P2.PO7 - find the area of a geometric figure composed of a combination of two or more geometric figures, given an appropriate real-world situation and the formulas)

(Mathematics Standard Articulated by Grade Level MHS-S4C4-01)

A new fence is being constructed around the school athletic field shown below.



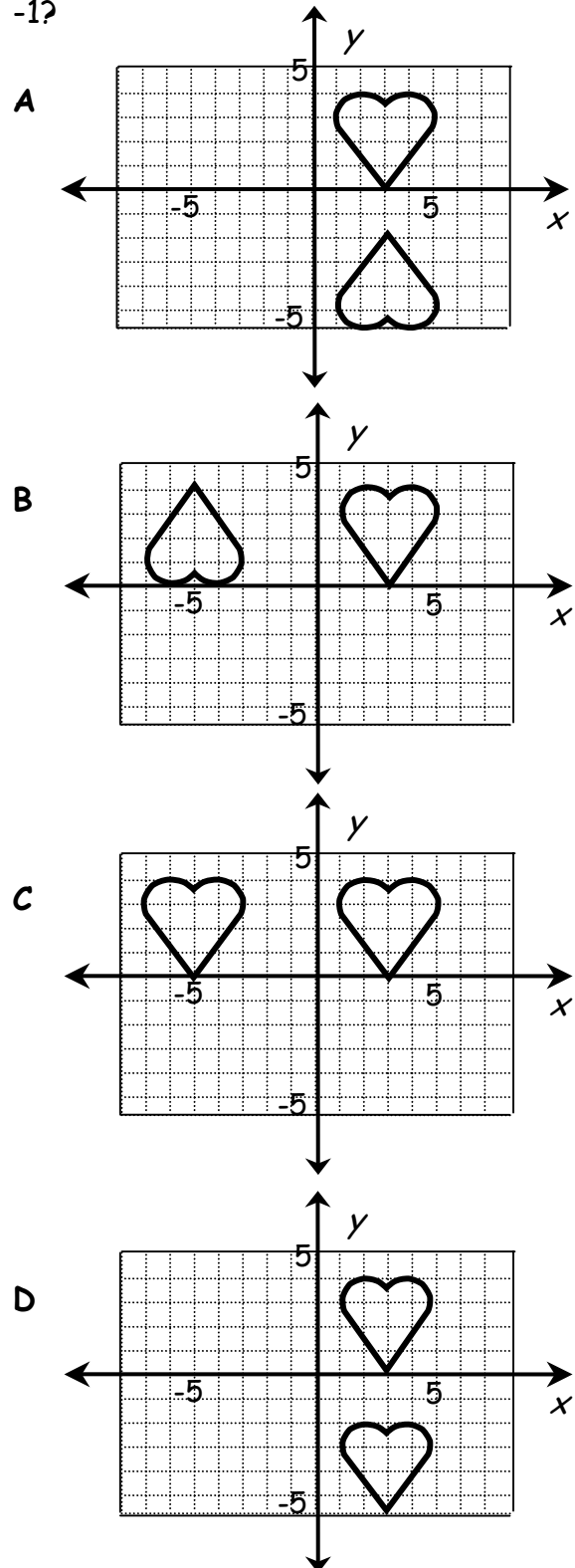
How much fencing will be needed to enclose the entire athletic field, which includes the track, the volleyball court, and the tennis courts?

- A 252 yds
- B 360 yds
- C 480 yds
- D 504 yds

Question #28 (concept 4M.P3.PO4 - sketch the planar figure that is the result of a given transformation)

(Mathematics Standard Articulated by Grade Level MHS-S4C2-01)

Which of the following graphs represents a reflection of the figure over the line $x = -1$?



STANDARD 5: Measurement and Discrete Mathematics

General concepts you should know:

- Algorithms
- Arithmetic and geometric sequences
- Metric and U.S. customary measurement
- Outcome sets
- Counting principle

Question #29 (concept 5M.P3.PO3 - determine whether given algorithms are equivalent)

(Mathematics Standard Articulated by Grade Level MHS-S5C1-06)

Which of the following algorithms are equivalent?

- I** Given a list of 25 numbers, put them in ascending order. Entry 13 is the number you are looking for.
- II** Given a list of 25 numbers, put them in descending order. Entry 13 is the number you are looking for.
- III** Given a list of 25 numbers, put them in ascending order. Entry 25 is the number you are looking for.
- IV** Given a list of 25 numbers, put them in descending order. Entry 25 is the number you are looking for.
- A** I and II
- B** II and III
- C** I and IV
- D** I, II, III, and IV

Question #30 (concept 5M.P3.PO3 - determine whether given algorithms are equivalent)

(Mathematics Standard Articulated by Grade Level MHS-S5C1-06)

Consider the following algorithm:

Step 1. Write the prime factorizations of 120, 192, and 720 using exponents.

$$120 = 2^3 \cdot 3 \cdot 5$$

$$192 = 2^6 \cdot 3$$

$$720 = 2^4 \cdot 3^2 \cdot 5$$

Step 2. Identify any common factors of the prime factorizations.

$$2^3, 3$$

Step 3. Multiply all the common factors, each raised to its respective smallest exponent.

$$2^3 \cdot 3 = 8 \cdot 3 = 24$$

What is the algorithm above used for?

- A** to find the prime factorizations of 120, 192, and 720
- B** to find the greatest common factor of 120, 192, and 720
- C** to find the least common factor of 120, 192, and 720
- D** to find the least common multiple of 120, 192, and 720

Question #31 (concept 5M.P4.PO1 - find the outcome set of a situation)

(Mathematics Standard Articulated by Grade Level MHS-S2C3-01)

For breakfast, John must choose either cereal (C) or yogurt (Y), and either apple juice (A) or orange juice (O). What is the outcome set of the breakfasts he could get?

- A {C, Y, A, O}
- B {CA, YO}
- C {CA, CO, YA, YO}
- D {CY, CA, CO, YA, YO, AO}

Question #32 (concept 5M.P4.PO4 - determine the number of possible outcomes...using the counting principal and tree diagrams)

(Mathematics Standard Articulated by Grade Level MHS-S2C3-01)

Six students are competing to attend a national conference in Washington, D.C. In how many ways can the four spots be awarded?

- A 15
- B 30
- C 120
- D 360

Question #33 (concept 5M.P4.PO1 - find the outcome set of a situation)

(Mathematics Standard Articulated by Grade Level MHS-S2C3-03)

Sally bought 2 purses (black and brown) and 3 pairs of shoes (blue, white and gray). Which of the following shows all possible outcomes of one pair of shoes with one purse that are available to her?

A

Black	White
	Blue
	Gray
Brown	White
	Blue
	Gray

B

Black	Blue	White	Gray
Brown	Blue	White	Gray

C

White	Black
	Blue
	Brown
	Gray
Gray	Black
	Blue
	Brown
	White
Blue	Black
	Brown
	Gray
	White

D

White	Black	Brown
Blue	Black	Brown
Gray	Black	Brown

STANDARD 6: Mathematical Structure and Logic

General concepts you should know:

- Inductive and deductive reasoning
- Conjectures
- Validity of arguments

Question 34 (concept 6M.P1.PO2 - produce a valid conjecture using inductive reasoning)
(Mathematics Standard Articulated by Grade Level MHS-S5C2-05)

Look at the sequence of numbers below.

$$\frac{2}{3}, -2, 6, -18, 54, -162, \dots$$

What is the rule to determine the next term in the sequence?

- A Multiply by 3
- B Multiply by -3
- C Multiply by $\frac{1}{3}$
- D Multiply by $-\frac{1}{3}$

Question #35 (concept 6M.P5.PO1 - determine whether a given algebraic expression and a possible simplified form are equivalent)
(Mathematics Standard Articulated by Grade Level MHS-S5C1-06)

Which of the choices below is equivalent to the following expression?

$$2(3x - 2y) + 4y$$

- A $6x$
- B $6x + 8y$
- C $6x - 2y$
- D $2xy + 4y$

Question #36 (concept 6M.P3.PO1 - construct a counterexample to show that a given invalid conjecture is false)
(Mathematics Standard Articulated by Grade Level MHS-S5C2-09, MHS-S5C2-10)

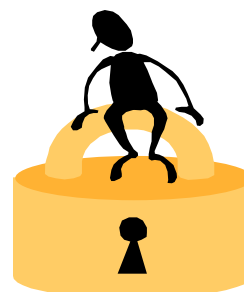
Nina makes the conjecture that $x^3 \geq x^2$ for all values of x . Which of the following is a counterexample to her conjecture?

- A $x = 1$.
- B all values of x between 0 and 1.
- C all values of $x > 1$.
- D $x = -1$.

APPENDIX A: Scoring Keys

READING KEY

Question #1:	C
Question #2:	A
Question #3:	A
Question #4:	D
Question #5:	B
Question #6:	B
Question #7:	D



MATHEMATICS KEY

Question #1:	D	Question #19:	A
Question #2:	B	Question #20:	B
Question #3:	C	Question #21:	D
Question #4:	A	Question #22:	A
Question #5:	D	Question #23:	A
Question #6:	B	Question #24:	D
Question #7:	A	Question #25:	C
Question #8:	A	Question #26:	C
Question #9:	D	Question #27:	C
Question #10:	D	Question #28:	C
Question #11:	C	Question #29:	A
Question #12:	B	Question #30:	B
Question #13:	D	Question #31:	C
Question #14:	B	Question #32:	A
Question #15:	B	Question #33:	A
Question #16:	B	Question #34:	B
Question #17:	C	Question #35:	A
Question #18:	B	Question #36:	D

Notes on Question 14:

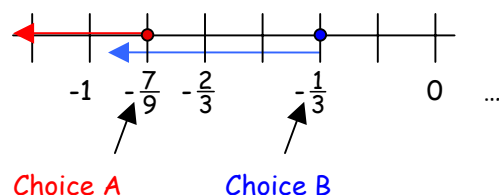
What are all values of x for which the inequality $5x + \frac{5}{3} \leq 2x - \frac{2}{3}$ is true? There are

two methods for answering this question.

Method A: The easiest method of finding the answer to this question is to solve the inequality.

$$\begin{array}{rcl}
 & 5x + \frac{5}{3} \leq 2x - \frac{2}{3} \\
 \text{Add } 2x \text{ to} & + 2x & + 2x \\
 \text{both sides:} & \hline
 \text{Gives} & 7x + \frac{5}{3} \leq -\frac{2}{3} \\
 \text{Subtract } \frac{5}{3} \text{ from} & - \frac{5}{3} & - \frac{5}{3} \\
 \text{both sides:} & \hline
 \text{Gives} & 7x \leq -\frac{7}{3} \\
 \text{Divide both} & \div 7 & \div 7 \\
 \text{sides by 7:} & \hline
 \text{Gives} & x \leq -\frac{1}{3}
 \end{array}$$

Method B: The other way to do it is to substitute in the answers. However, this is one of the times that substitution is not the best approach to solving an equation. Yes, both answer choice A and answer choice B will satisfy the equation. However, substitution, which gives answer choice A, misses all the values between $-1/3$ and $-7/9$; hence, it doesn't answer the question which asks for ALL the values. If one draws a number line, it becomes clearer.



Notes:

IDEAS and CONTENT

<p>6</p> <p>The writing is exceptionally clear, focused and interesting. It holds the reader's attention throughout. Main ideas stand out and are developed by strong support and rich details suitable to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • clarity, focus, and control. • main idea(s) that stand out. • supporting, relevant, carefully selected details; when appropriate, use of resources provides strong, accurate, credible support • a thorough, balanced, in-depth explanation/ exploration of the topic; the writing makes connections and shares insights. • content and selected details that are well suited to audience and purpose. 	<p>5</p> <p>The writing is clear, focused and interesting. It holds the reader's attention. Main ideas stand out and are developed by supporting details suitable to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • clarity, focus, and control. • main idea(s) that stand out. • supporting, relevant, carefully selected details; when appropriate, use of resources provides strong, accurate, credible support. • a thorough, balanced explanation/exploration of the topic; the writing makes connections and shares insights. • content and selected details that are well-suited to audience and purpose. 	<p>4</p> <p>The writing is clear and focused. The reader can easily understand the main ideas. Support is present, although it may be limited or rather general. The writing is characterized by</p> <ul style="list-style-type: none"> • an easily identifiable purpose. • clear main idea(s) • supporting details that are relevant, but may be overly general or limited in places; when appropriate, resources are used to provide accurate support. • a topic that is explored/explained, although developmental details may occasionally be out of balance with the main idea(s); some connections and insights may be present. • content and selected details that are relevant, but perhaps not consistently well chosen for audience and purpose. 	<p style="text-align: center; writing-mode: vertical-rl; transform: rotate(180deg);">APPENDIX B - Official Scoring Guide for AIMS Writing</p>
<p>3</p> <p>The reader can understand the main ideas, although they may be overly broad or simplistic, and the results may not be effective. Supporting detail is often limited, insubstantial, overly general, or occasionally slightly off-topic. The writing is characterized by</p> <ul style="list-style-type: none"> • an easily identifiable purpose and main idea(s). • predictable or overly-obvious main ideas or plot; conclusions or main points seem to echo observations heard elsewhere. • support that is attempted; but developmental details that are often limited in scope, uneven, somewhat off-topic, predictable, or overly general. • details that may not be well-grounded in credible resources; they may be based on clichés, stereotypes or questionable sources of information. • difficulties when moving from general observations to specifics. 	<p>2</p> <p>Main ideas and purpose are somewhat unclear or development is attempted but minimal. The writing is characterized by</p> <ul style="list-style-type: none"> • a purpose and main idea(s) that may require extensive inferences by the reader. • minimal development; insufficient details. • irrelevant details that clutter the text. • extensive repetition of detail. 	<p>1</p> <p>The writing lacks a central idea or purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • ideas that are extremely limited or simply unclear. • attempts at development that are minimal or non-existent; the paper is too short to demonstrate the development of an idea. 	

ORGANIZATION

<p>6</p> <p>The organization enhances the central idea(s) and its development. The order and structure are compelling and move the reader through the text easily. The writing is characterized by</p> <ul style="list-style-type: none"> • effective, perhaps creative, sequencing; the organizational structure fits the topic, and the writing is easy to follow. • a strong, inviting beginning that draws the reader in and a strong satisfying sense of resolution or closure. • smooth, effective transitions among all elements (sentences, paragraphs, and ideas). • details that fit where placed. 	<p>5</p> <p>The organization enhances the central idea(s) and its development. The order and structure are strong and move the reader through the text. The writing is characterized by.</p> <ul style="list-style-type: none"> • effective sequencing; the organizational structure fits the topic, and the writing is easy to follow. • an inviting beginning that draws the reader in and a satisfying sense of resolution or closure. • smooth, effective transitions among all elements (sentences, paragraphs, and ideas). • details that fit where placed. 	<p>4</p> <p>Organization is clear and coherent. Order and structure are present, but may seem formulaic. The writing is characterized by</p> <ul style="list-style-type: none"> • clear sequencing. • an organization that may be predictable. • a recognizable, developed beginning that may not be particularly inviting; a developed conclusion that may lack subtlety. • a body that is easy to follow with details that fit where placed. • transitions that may be stilted or formulaic. • organization which helps the reader, despite some weaknesses.
<p>3</p> <p>An attempt has been made to organize the writing; however, the overall structure is inconsistent or skeletal. The writing is characterized by</p> <ul style="list-style-type: none"> • attempts at sequencing, but the order or the relationship among ideas may occasionally be unclear. • a beginning and an ending which, although present, are either undeveloped or too obvious (e.g. "My topic is...", "These are all the reasons that...") • transitions that sometimes work. The same few transitional devices (e.g., coordinating conjunctions, numbering, etc.) may be overused. • a structure that is skeletal or too rigid. • placement of details that may not always be effective. • organization which lapses in some places, but helps the reader in others. 	<p>2</p> <p>The writing lacks a clear organizational structure. An occasional organizational device is discernible; however, the writing is either difficult to follow and the reader has to reread substantial portions, or the piece is simply too short to demonstrate organizational skills. The writing is characterized by</p> <ul style="list-style-type: none"> • some attempts at sequencing, but the order or the relationship among ideas is frequently unclear. • a missing or extremely undeveloped beginning, body, and/or ending. • a lack of transitions, or when present, ineffective or overused. • a lack of an effective organizational structure. • details that seem to be randomly placed, leaving the reader frequently confused. 	<p>1</p> <p>The writing lacks coherence; organization seems haphazard and disjointed. Even after rereading, the reader remains confused. The writing is characterized by</p> <ul style="list-style-type: none"> • a lack of effective sequencing. • a failure to provide an identifiable beginning, body and/or ending. • a lack of transitions. • pacing that is consistently awkward; the reader feels either mired down in trivia or rushed along too rapidly. • a lack of organization which ultimately obscures or distorts the main point.

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VOICE

<p>6</p> <p>The writer has chosen a voice appropriate for the topic, purpose and audience. The writer seems deeply committed to the topic, and there is an exceptional sense of “writing to be read.” The writing is expressive, engaging, or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> • an effective level of closeness to or distance from the audience (e.g., a narrative should have a strong personal voice, while an expository piece may require extensive use of outside resources and a more academic voice; nevertheless, both should be engaging, lively, or interesting. Technical writing may require greater distance.). • an exceptionally strong sense of audience; the writer seems to be aware of the reader and of how to communicate the message most effectively. The reader may discern the writer behind the words and feel a sense of interaction. • a sense that the topic has come to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense. 	<p>5</p> <p>The writer has chosen a voice appropriate for the topic, purpose, and audience. The writer seems committed to the topic, and there is a sense of “writing to be read.” The writing is expressive, engaging or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> • an appropriate level of closeness to or distance from the audience (e.g., a narrative should have a strong personal voice while an expository piece may require extensive use of outside resources and a more academic voice; nevertheless, both should be engaging, lively or interesting. Technical writing may require greater distance.). • a strong sense of audience; the writer seems to be aware of the reader and of how to communicate the message most effectively. The reader may discern the writer behind the words and feel a sense of interaction. • a sense that the topic has come to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense. 	<p>4</p> <p>A voice is present. The writer demonstrates commitment to the topic, and there may be a sense of “writing to be read.” In places, the writing is expressive, engaging, or sincere. The writing is characterized by</p> <ul style="list-style-type: none"> • a questionable or inconsistent level of closeness to or distance from the audience. • a sense of audience; the writer seems to be aware of the reader but has not consistently employed an appropriate voice. The reader may glimpse the writer behind the words and feel a sense of interaction in places. • liveliness, sincerity, or humor when appropriate; however, at times the writing may be either inappropriately casual or personal, or inappropriately formal and stiff.
<p>3</p> <p>The writer’s commitment to the topic seems inconsistent. A sense of the writer may emerge at times; however, the voice is either inappropriately personal or inappropriately impersonal. The writing is characterized by</p> <ul style="list-style-type: none"> • a limited sense of audience; the writer’s awareness of the reader is unclear. • an occasional sense of the writer behind the words; however, the voice may shift or disappear a line or two later and the writing become somewhat mechanical. • a limited ability to shift to a more objective voice when necessary. 	<p>2</p> <p>The writing provides little sense of involvement or commitment. There is no evidence that the writer has chosen a suitable voice. The writing is characterized by</p> <ul style="list-style-type: none"> • little engagement of the writer; the writing tends to be largely flat, lifeless, stiff, or mechanical. • a voice that is likely to be overly informal and personal. • a lack of audience awareness; there is little sense of “writing to be read.” • little or no hint of the writer behind the words. There is rarely a sense of interaction between reader and writer. 	<p>1</p> <p>The writing seems to lack a sense of involvement or commitment. The writing is characterized by</p> <ul style="list-style-type: none"> • no engagement of the writer; the writing is flat and lifeless. • a lack of audience awareness; there is no sense of “writing to be read.” • no hint of the writer behind the words. There is no sense of interaction between writer and reader; the writing does not involve or engage the reader.

WORD CHOICE

<p>6</p> <p>Words convey the intended message in an exceptionally interesting, precise, and natural way appropriate to audience and purpose. The writer employs a rich, broad range of words, which have been carefully chosen and thoughtfully placed for impact. The writing is characterized by</p> <ul style="list-style-type: none"> • accurate, strong, specific words; powerful words energize the writing. • fresh, original expression; slang, if used, seems purposeful and is effective. • vocabulary that is striking and varied, but that is natural and not overdone. • ordinary words used in an unusual way. • words that evoke strong images; figurative language may be used. 	<p>5</p> <p>Words convey the intended message in an interesting, precise, and natural way appropriate to audience and purpose. The writer employs a broad range of words which have been carefully chosen and thoughtfully placed for impact. The writing is characterized by</p> <ul style="list-style-type: none"> • accurate, specific words; word choices energize the writing. • fresh, vivid expression; slang, if used, seems purposeful and is effective. • vocabulary that may be striking and varied, but that is natural and not overdone. • ordinary words used in an unusual way. • words that evoke clear images; figurative language may be used. 	<p>4</p> <p>Words effectively convey the intended message. The writer employs a variety of words that are functional and appropriate to audience and purpose. The writing is characterized by</p> <ul style="list-style-type: none"> • words that work but do not particularly energize the writing. • expression that is functional; however, slang, if used, does not seem purposeful and is not particularly effective. • attempts at colorful language that may occasionally seem overdone. • occasional overuse of technical language or jargon. • rare experiments with language; however, the writing may have some fine moments and generally avoids clichés.
<p>3</p> <p>Language is quite ordinary, lacking interest, precision and variety, or may be inappropriate to audience and purpose in places. The writer does not employ a variety of words, producing a sort of “generic” paper filled with familiar words and phrases. The writing is characterized by</p> <ul style="list-style-type: none"> • words that work, but that rarely capture the reader’s interest. • expression that seems mundane and general; slang, if used, does not seem purposeful and is not effective. • attempts at colorful language that seem overdone or forced. • words that are accurate for the most part, although misused words may occasionally appear, technical language or jargon may be overused or inappropriately used. • reliance on clichés and overused expressions. 	<p>2</p> <p>Language is monotonous and/or misused, detracting from the meaning and impact. The writing is characterized by</p> <ul style="list-style-type: none"> • words that are colorless, flat or imprecise. • monotonous repetition or overwhelming reliance on worn expressions that repeatedly distract from the message. • images that are fuzzy or absent altogether. 	<p>1</p> <p>The writing shows an extremely limited vocabulary or is so filled with misuses of words that the meaning is obscured. Only the most general kind of message is communicated because of vague or imprecise language. The writing is characterized by</p> <ul style="list-style-type: none"> • general, vague words that fail to communicate. • an extremely limited range of words. • words that simply do not fit the text; they seem imprecise, inadequate, or just plain wrong.

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SENTENCE FLUENCY

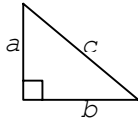
<p>6</p> <p>The writing has an effective flow and rhythm. Sentences show a high degree of craftsmanship, with consistently strong and varied structure that makes expressive oral reading easy and enjoyable. The writing is characterized by</p> <ul style="list-style-type: none"> • a natural, fluent sound; it glides along with one sentence flowing effortlessly into the next. • extensive variation in sentence structure, length, and beginnings that add interest to the text. • sentence structure that enhances meaning by drawing attention to key ideas or reinforcing relationships among ideas. • varied sentence patterns that create an effective combination of power and grace. • strong control over sentence structure; fragments, if used at all, work well. • stylistic control; dialogue, if used, sounds natural. 	<p>5</p> <p>The writing has an easy flow and rhythm. Sentences are carefully crafted, with strong and varied structure that makes expressive oral reading easy and enjoyable. The writing is characterized by</p> <ul style="list-style-type: none"> • a natural, fluent sound; it glides along with one sentence flowing into the next. • variation in sentence structure, length, and beginnings that add interest to the text. • sentence structure that enhances meaning. • control over sentence structure; fragments, if used at all, work well. • stylistic control; dialogue, if used sounds natural. 	<p>4</p> <p>The writing flows; however, connections between phrases or sentences may be less than fluid. Sentence patterns are somewhat varied, contributing to ease in oral reading. The writing is characterized by</p> <ul style="list-style-type: none"> • a natural sound; the reader can move easily through the piece, although it may lack a certain rhythm and grace. • some repeated patterns of sentence structure, length, and beginnings that may detract somewhat from overall impact. • strong control over simple sentence structures, but variable control over more complex sentences; fragments, if present, are usually effective. • occasional lapses in stylistic control; dialogue, if used, sounds natural for the most part, but may at times sound stilted or unnatural.
<p>3</p> <p>The writing tends to be mechanical rather than fluid. Occasional awkward constructions may force the reader to slow down or reread. The writing is characterized by</p> <ul style="list-style-type: none"> • some passages that invite fluid oral reading; however, others do not. • some variety in sentences structure, length, and beginnings, although the writer falls into repetitive sentence patterns. • good control over simple sentence structures, but little control over more complex sentences; fragments, if present, may not be effective. • sentences which, although functional, lack energy. • lapses in stylistic control; dialogue, if used, may sound stilted or unnatural. 	<p>2</p> <p>The writing tends to be either choppy or rambling. Awkward constructions often force the reader to slow down or reread. The writing is characterized by</p> <ul style="list-style-type: none"> • significant portions of the text that are difficult to follow or read aloud. • sentence patterns that are monotonous (e.g., subject-verb or subject-verb-object). • a significant number of awkward, choppy, or rambling constructions. 	<p>1</p> <p>The writing is difficult to follow or to read aloud. Sentences tend to be incomplete, rambling, or very awkward. The writing is characterized by</p> <ul style="list-style-type: none"> • text that does not invite—and may not even permit—smooth oral reading. • confusing word order that is often jarring and irregular. • sentence structure that frequently obscures meaning. • sentences that are disjointed, confusing, or rambling.

CONVENTIONS

<p>6</p> <p>The writing demonstrates exceptionally strong control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage) and uses them effectively to enhance communication. Errors are so few and so minor that the reader can easily skim right over them unless specifically searching for them. The writing is characterized by</p> <ul style="list-style-type: none"> • strong control of conventions; manipulation of conventions may occur for stylistic effect. • strong, effective use of punctuation that guides the reader through the text. • correct spelling, even of more difficult words. • paragraph breaks that reinforce the organizational structure. • correct grammar and usage that contribute to clarity and style. • skill in using a wide range of conventions in a sufficiently long and complex piece. • little or no need for editing. 	<p>5</p> <p>The writing demonstrates strong control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage) and uses them effectively to enhance communication. Errors are so few and so minor that they do not impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • strong control of conventions. • effective use of punctuation that guides the reader through the text. • correct spelling, even of more difficult words. • paragraph breaks that reinforce the organizational structure. • correct capitalization; errors, if any, are minor. • correct grammar and usage that contribute to clarity and style. • skill in using a wide range of conventions in a sufficiently long and complex piece. • little need for editing. 	<p>4</p> <p>The writing demonstrates control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage). Minor errors, while perhaps noticeable, do not impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • control over conventions used, although a wide range is not demonstrated. • correct end-of-sentence punctuation, internal punctuation may sometimes be incorrect. • spelling that is usually correct, especially on common words. • basically sound paragraph breaks that reinforce the organizational structure. • correct capitalization; errors, if any, are minor. • occasional lapses in correct grammar and usage; problems are not severe enough to distort meaning or confuse the reader. • moderate need for editing.
<p>3</p> <p>The writing demonstrates limited control of standard writing conventions (e.g., punctuation, spelling, capitalization, paragraph breaks, grammar and usage). Errors begin to impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • some control over basic conventions; the text may be too simple to reveal mastery. • end-of-sentence punctuation that is usually correct; however, internal punctuation contains frequent errors. • spelling errors that distract the reader; misspelling of common words occurs. • paragraphs that sometimes run together or begin at ineffective places. • capitalization errors. • errors in grammar and usage that do not block meaning but do distract the reader. • significant need for editing. 	<p>2</p> <p>The writing demonstrates little control of standard writing conventions. Frequent, significant errors impede readability. The writing is characterized by</p> <ul style="list-style-type: none"> • little control over basic conventions. • many end-of-sentence punctuation errors; internal punctuation contains frequent errors. • spelling errors that frequently distract the reader; misspelling of common words often occurs. • paragraphs that often run together or begin in ineffective places. • capitalization that is inconsistent or often incorrect. • errors in grammar and usage that interfere with readability and meaning. • substantial need for editing. 	<p>1</p> <p>Numerous errors in usage, spelling, capitalization, and punctuation repeatedly distract the reader and make the text difficult to read. In fact, the severity and frequency of errors are so overwhelming that the reader finds it difficult to focus on the message and must reread for meaning. The writing is characterized by</p> <ul style="list-style-type: none"> • very limited skill in using conventions. • basic punctuation (including end-of-sentence punctuation) that tends to be omitted, haphazard, or incorrect. • frequent spelling errors that significantly impair readability. • paragraph breaks that may be highly irregular or so frequent (every sentence) that they bear no relation to the organization of the text. • capitalization that appears to be random. • a need for extensive editing.

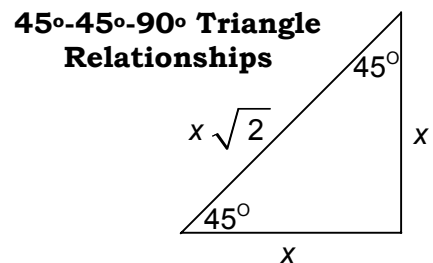
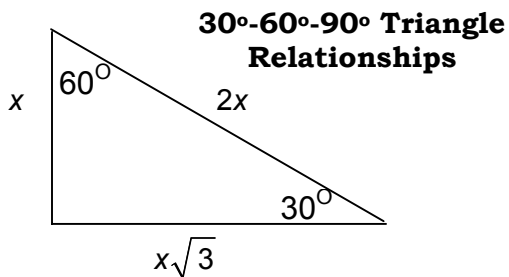
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AIMS Mathematics Reference Sheet

		Key	
	Area	b = base	d = diameter
Triangle	$A = \frac{1}{2}bh$	h = height	r = radius
Rectangle	$A = lw$	l = length	A = Area
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$	w = width	V = Volume
Parallelogram	$A = bh$	s = slant height	T = Total surface area
Circle	$A = \pi r^2$	Use 3.14 or $\frac{22}{7}$ for π	
Volume		Total Surface Area	
Right Circular Cone	$V = \frac{1}{3}\pi r^2 h$	Circumference = $\pi d = 2\pi r$	
Square Pyramid	$V = \frac{1}{3}lwh$	$T = \frac{1}{2}(2\pi r)s + \pi r^2 = \pi rs + \pi r^2$	
Sphere	$V = \frac{4}{3}\pi r^3$	$T = 4(\frac{1}{2}ls) + l^2 = 2ls + l^2$	
Right Circular Cylinder	$V = \pi r^2 h$	$T = 4\pi r^2$	
Rectangular Solid	$V = lwh$	$T = 2\pi rh + 2\pi r^2$	
 Pythagorean Theorem $c^2 = a^2 + b^2$		Distance between two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$	
Slope-intercept form of an equation of a line, where m = slope and b = the y -intercept		$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	
$y = mx + b$		Midpoint between two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$	
Quadratic Formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$		$\left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2} \right)$	
Distance, rate, time formula, where d = distance, r = rate, t = time		Slope between two points: $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$	
$d = rt$		$m = \frac{y_2 - y_1}{x_2 - x_1}$	

AIMS Mathematics Reference Sheet

Special Triangle Relationships



Point-Slope Form

$$y_2 - y_1 = m(x_2 - x_1)$$

Linear Equation Forms

Slope-intercept Form

$$y = mx + b$$

Standard or General Form

$$Ax + By = C$$

Permutations

$${}_nP_r = \frac{n!}{(n-r)!}$$

Combinations

$${}_nC_r = \frac{n!}{(n-r)!r!}$$

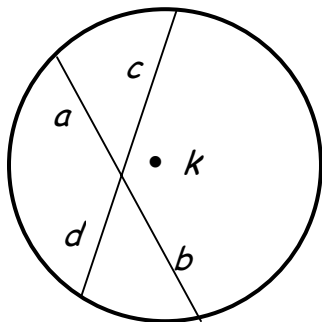
Factorial

Example: $6! = 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Number of degrees in the interior of a polygon: $S = (n - 2)180$

Chords for circle k

$$ab = cd$$



Sine = the ratio of the side opposite the angle to the hypotenuse

Cosine = the ratio of the side adjacent the angle to the hypotenuse

Tangent = the ratio of the side opposite the angle to the side adjacent the angle

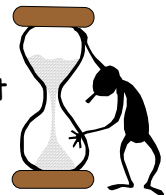
APPENDIX D

Test-Taking Strategies

A Review

(You have heard these before, but they can make a difference)

- **Be physically prepared.** Get plenty of rest the night before. On the day of the test, **eat a healthy breakfast.**
- **Be mentally prepared.** Try to relax and do your best. It is not unusual to feel nervous about tests. The key is being well prepared. Then you can view the test as an opportunity to truly show what you know and are able to do.
- **Listen to directions** as the teacher explains them. **Ask** about any directions you do not understand.
- **Read the directions carefully.**
- **Look for key words** that will help you identify what the question is asking you to do.
- **Take your time** and work at your own pace. AIMS is not a timed test, but you do want to use your time well.
- **Move on** to the next item if you are stuck. **Be sure to return** to it later.
- **Make educated guesses** if you are unsure of an answer. First eliminate choices that are obviously incorrect, then logically select from the remaining choices.



- **Take the time to review your answers** when you are finished. **Re-read** your written responses to check that they are clear.